



## **Computer Infrastructure and Support (0708) – Labor Market Information**

**Cybersecurity Analyst, Cloud Security Administrator, Penetration Tester Certificates**

**August 2018**

**Prepared by the South Central Coast Center of Excellence for Labor Market Research**

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### **Labor Market Information**

This report was compiled by the South Central Coast<sup>1</sup> Center of Excellence to provide regional labor market data for the proposed certificates - Cybersecurity Analyst, Cloud Security Administrator, and Penetration Tester - within the area of Computer Infrastructure and Support. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study that align with this occupation group.

### **Overview**

- In 2016 there were 3 regional institutions with completions (8) in Computer Infrastructure and Support. Regionally there were 812 openings in this area.
- Job growth is expected for Information Security Analysts (+13%) over the next five years.
- Typical entry level education for Information Security Analysts is a bachelors degree.
- Starting Salary in the region for Information Security Analysts - \$73,008.
- 65% of students are earning a living wage.
- 77% of students are employed after a year.

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<sup>1</sup> The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

## Occupation Codes and Descriptions

Currently, there is one occupation in the standard occupational classification (SOC) system that is related to the proposed certificates (Cybersecurity Analyst, Cloud Security Administrator, Penetration Tester) under Computer Infrastructure and Support. The occupation title and description, as well as reported job titles, are included in Exhibit 1.

**Exhibit 1 – Occupation, description, and sample job titles**

SOC Code	Title	Description	Sample of Reported Job Titles
15-1122	Information Security Analysts	Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses.	Data Security Administrator, Information Security Officer, Information Security Specialist, Information Systems Security Analyst, Information Systems Security Officer, Information Technology Security Analyst (IT Security Analyst), Information Technology Specialist, Network Security Analyst, Security Analyst, Systems Analyst

Source: O\*NET Online

## Current and Future Employment

In the South Central Coast region the identified occupation is expected to experience growth over the next five years - Information Security Analysts (+13%). Exhibit 2 contains detailed employment projection data for this occupation.

**Exhibit 2 – Five-year projections for Information Security Analysts in the South Central Coast region**

SOC	Occupation	2017 Jobs	2022 Jobs	2017-2022 Change	2017-2022% Change	Annual Openings
15-1122	Information Security Analysts	454	513	59	13%	44

Source: Economic Modeling Specialists International (EMSI)

### \*Total Jobs (2017), Average Change (2017-2022), and Median Hourly Earnings for Selected Occupation

<b>454</b>	<b>+13%</b>	<b>\$47.21/hr</b>
Jobs (2017)	% Change (2017-2022)	Median Hourly Earnings
32% below National average	Nation: +16.4%	Nation: \$45.92/hr

## Earnings

Exhibit 3 contains hourly wages and annual average earnings for this occupation. Entry-level hourly earnings is represented by the 10<sup>th</sup> percentile of wages, median hourly earnings is represented by the 50<sup>th</sup> percentile of wages, and experienced hourly earnings is represented by the 90<sup>th</sup> percentile of wages, demonstrating various levels of employment.

**Exhibit 3 – Earnings for Information Security Analysts in the South Central Coast region**

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
15-1122	Information Security Analysts	\$32.46	\$47.21	\$60.67

Source: Economic Modeling Specialists International (EMSI)

## Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for the occupation relevant to the field of study. Employer job postings are consulted to understand who is employing Information Security Analysts, and what they are looking for in potential candidates.

## Top Occupations

In 2017, there were 391 employer postings for the identified occupation.

**Exhibit 4 – Job Postings, Full Year 2017**

SOC Code	Occupation	Job Postings, Full Year 2017
15-1122	Information Security Analysts	391

Source: Labor Insight/Jobs (Burning Glass)

## Top Titles

The top job titles for employers posting ads for Information Security Analysts are listed in Exhibit 5. Security Engineer is mentioned as the job title in 9% of all relevant job postings (391 postings).

**Exhibit 5 –Job titles (n=391)**

Title	Job Postings, Full Year 2017
Security Engineer	35
Security Analyst	32
Information Security Engineer	25
Security Specialist	19
Cyber Security Specialist	16
Information Security Analyst	16

Source: Labor Insight/Jobs (Burning Glass)

## Top Employers

Exhibit 6 lists the major employers hiring professionals in this area of the Computer Infrastructure and Support field. Top employers posting job ads included Bank of America, KRG Technologies, Northrop Grumman, Lockheed Martin Corporation, and Mantech International Corporation. The top worksite cities in the region for these occupations were Simi Valley, Palmdale, Santa Maria, San Luis Obispo, and Lompoc.

**Exhibit 6 – Top employers (n=306)**

<b>Employer</b>	<b>Job Postings, Full Year 2016</b>
Bank of America	49
KRG Technologies	24
Northrop Grumman	24
Lockheed Martin Corporation	23
Mantech International Corporation	11

Source: Labor Insight/Jobs (Burning Glass)

## Top Job Skills

Information Security is the most sought after skill for employers hiring for Information Security Analysts. The other top job-specific skills desired by employers relate to Information Systems, Linux, Network Security, and Information Assurance.

**Exhibit 7 – Top Job skills (n=361)**

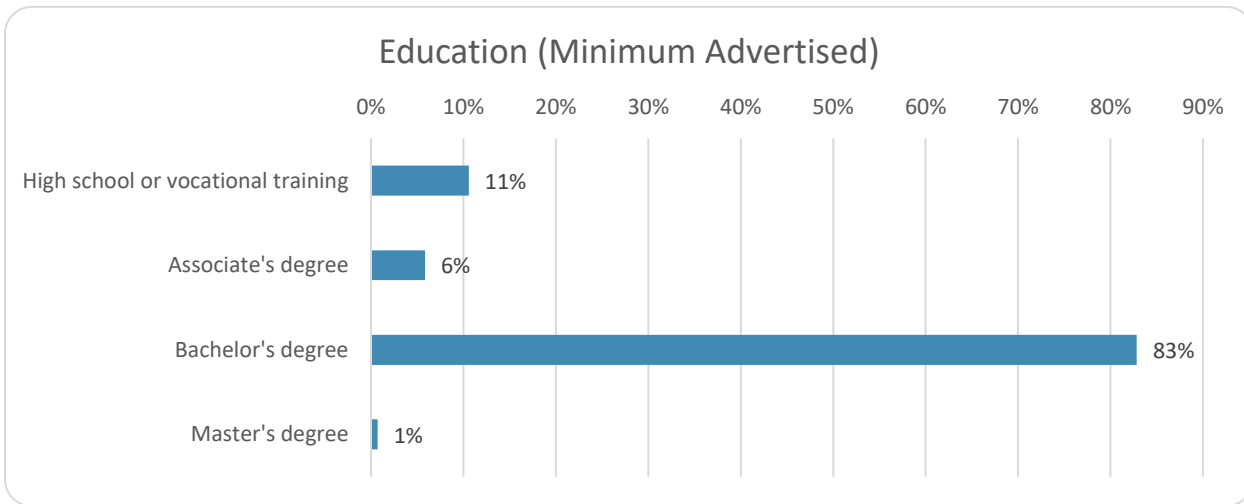
<b>Skills</b>	<b>Job Postings, Full Year 2016</b>
Information Security	231
Information Systems	108
Linux	95
Network Security	86
Information Assurance	83

Source: Labor Insight/Jobs (Burning Glass)

### Advertised Education Levels

Exhibit 8 displays the education level requested by employers in online job ads. The majority of employers were looking for a candidate with a bachelor’s degree. Approximately 52% of job postings did not specify a level of education.

**Exhibit 8 – Minimum advertised education requirements for Information Security Analysts (n=202)**



Source: Labor Insight/Jobs (Burning Glass)

### Industry Concentration

Computer User Support Specialist jobs in the South Central Coast region are most often found in the Professional, Scientific, and Technical Services. Exhibit 9 shows the industries where most Information Security Analysts are employed.

**Exhibit 9 – Industries employing the most Information Security Analysts, 2017 (n=320)**

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Professional, Scientific, and Technical Services	107	33%
Finance and Insurance	69	22%
Manufacturing	67	21%
Administrative and Support and Waste Management and Remediation Services	33	10%
Educational Services	16	5%

## Education and Training

Exhibit 10 shows the typical entry-level education requirement for the occupation of interest, along with the typical on-the-job training, according to the Bureau of Labor Statistics.

**Exhibit 10 – Education and training requirements (2016)**

SOC	Occupation	Typical entry-level education	Typical on-the-job training
15-1151	Information Security Analysts	Bachelor's Degree	None

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

Currently, four community colleges in the South Central Coast region train students in programs related to the field of Computer Infrastructure and Support. Exhibit 11 displays the headcount for each of the colleges training in this field. Headcount is the actual number of students enrolled, regardless of credit hours.

**Exhibit 11 – Headcounts - 2016-17 (by TOP and College)**

TOP Code	Program	College	CCC Headcount
0708	Computer Infrastructure and Support	Allan Hancock	-
		Antelope Valley	-
		Canyons	11
		Cuesta	79
		Moorpark	218
		Oxnard	-
		Santa Barbara	50
		Ventura	-
			<b>358</b>

Source: CTE LaunchBoard

In 2016 there were 3 regional institutions with completions in Computer Infrastructure and Support with 8 annual completions, 812 annual openings.

<b>3</b>	<b>8</b>	<b>812</b>
Regional Institutions had Completions (2016)	Regional Completions (2016)	Annual Openings (2016)
<i>Cuesta, SBCC, Charter College-Canyon Country</i>		

## **Student Outcomes**

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Computer Infrastructure and Support (TOP Code: 0708) in the South Central Coast region for the 2015-16 academic year.

- Starting Salary in the region for Information Security Analysts - \$73,008
- 65% of students are earning a living wage
- 77% of students are employed after a year

Source: CTE LaunchBoard

## **Sources**

O\*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

## **Notes**

Data included in this analysis represents the labor market demand for positions most closely related to Computer Infrastructure and Support. Standard occupational classification (SOC) codes were chosen based on the training goals of the proposed certificates. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges.